

15 November 2018

# Challenges to Building Transmission Facilities Where and When Needed: Siting and Permitting Issues

DOE Public Workshop

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# National Transmission Grid Study

The Honorable Spencer Abraham  
Secretary of Energy



U.S. Department  
of Energy

May 2002

# Transmission Siting and Permitting

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Alexandria, Virginia

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Montpelier, Vermont



# EASTERN WIND INTEGRATION AND TRANSMISSION STUDY

PIX #16204

*PREPARED FOR:*

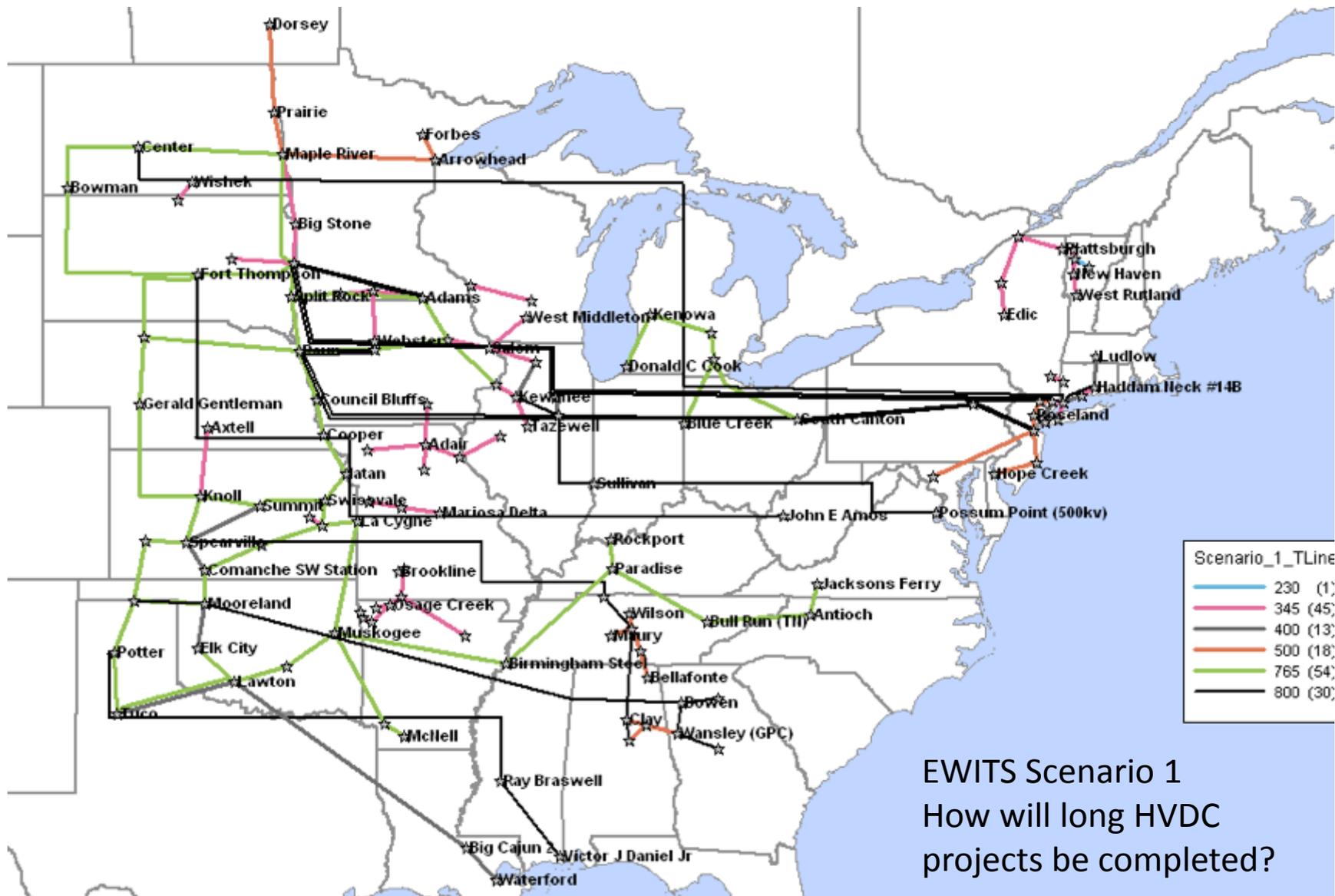
**The National Renewable Energy Laboratory**

A national laboratory of the U.S. Department of Energy

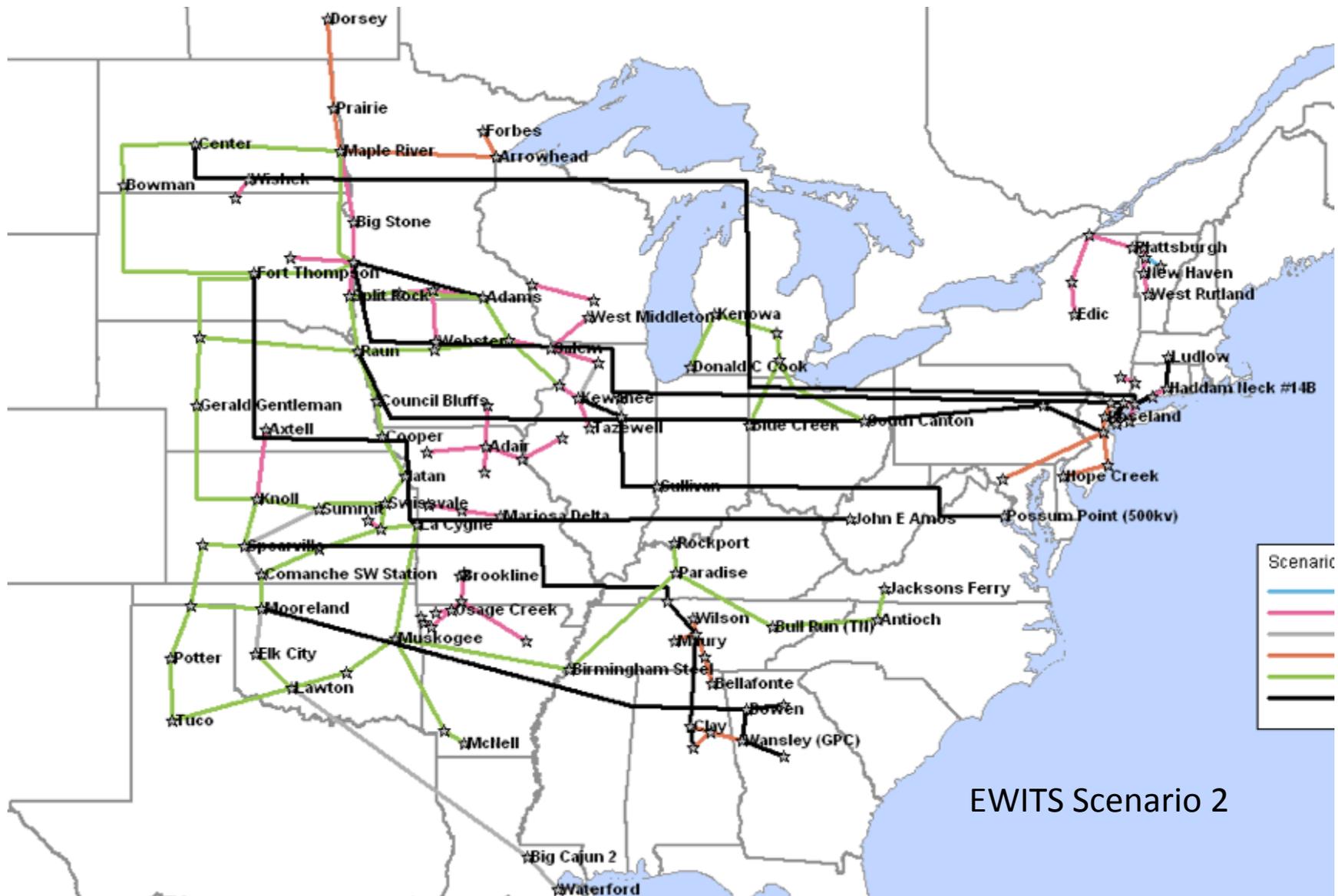
*PREPARED BY:*

**EnerNex Corporation**

*REVISED FEBRUARY 2011*



EWITS Scenario 1  
 How will long HVDC  
 projects be completed?

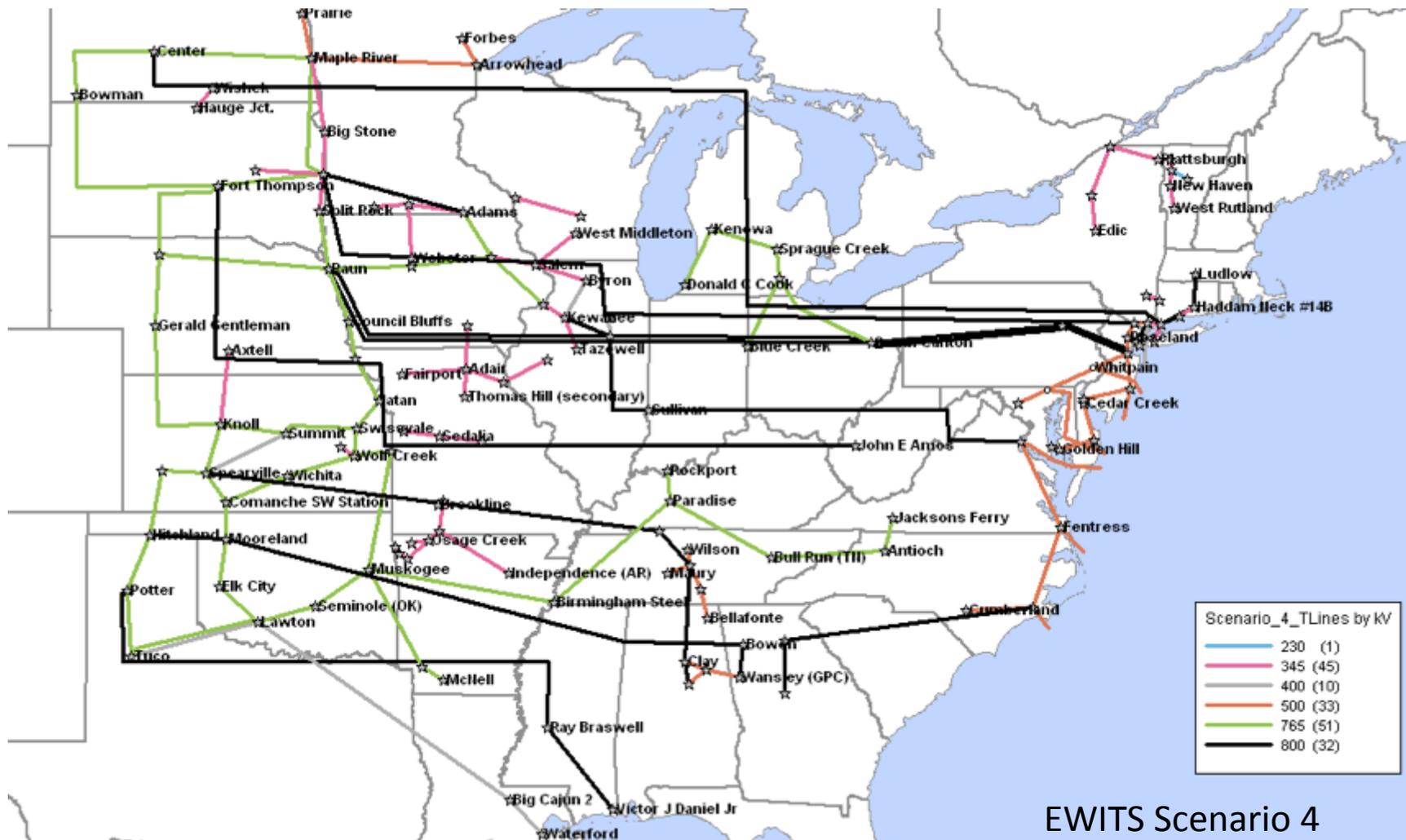


EWITS Scenario 2

Scenario
Light Blue
Pink
Grey
Orange
Black



EWITS Scenario 3



EWITS Scenario 4



# WESTERN WIND AND SOLAR INTEGRATION STUDY

PREPARED FOR:  
**The National Renewable Energy Laboratory**  
A national laboratory of the U.S. Department of Energy

PREPARED BY:  
**GE Energy**

MAY 2010

# EASTERN WIND INTEGRATION AND TRANSMISSION STUDY

PREPARED FOR:  
**The National Renewable Energy Laboratory**  
A national laboratory of the U.S. Department of Energy

PREPARED BY:  
**EnerNex Corporation**

REVISED FEBRUARY 2011



## Eastern Renewable Generation Integration Study

Aaron Bloom<sup>1</sup>, Aaron Townsend<sup>1</sup>, David Palchak<sup>1</sup>, Joshua Novacheck<sup>1</sup>, Jack King<sup>2</sup>, Clayton Barrows<sup>1</sup>, Eduardo Ibanez<sup>3</sup>, Matthew O'Connell<sup>1</sup>, Gary Jordan<sup>3</sup>, Billy Roberts<sup>1</sup>, Caroline Draxl<sup>1</sup>, and Kenny Gruchalla<sup>1</sup>

<sup>1</sup>National Renewable Energy Laboratory  
<sup>2</sup>RePPAE LLC  
<sup>3</sup>GE

[Executive Summary](#)

NREL is a national laboratory of the U.S. Department of Energy  
Office of Energy Efficiency & Renewable Energy  
Operated by the Alliance for Sustainable Energy, LLC

This report is available at no cost from the National Renewable Energy Laboratory (NREL) at [www.nrel.gov/publications](http://www.nrel.gov/publications).

**Technical Report**  
NREL/TP-6A20-64472  
August 2016

Contract No. DE-AC36-08GO28308

# Meeting Renewable Energy Targets in the West at Least Cost: The Integration Challenge

Executive Summary



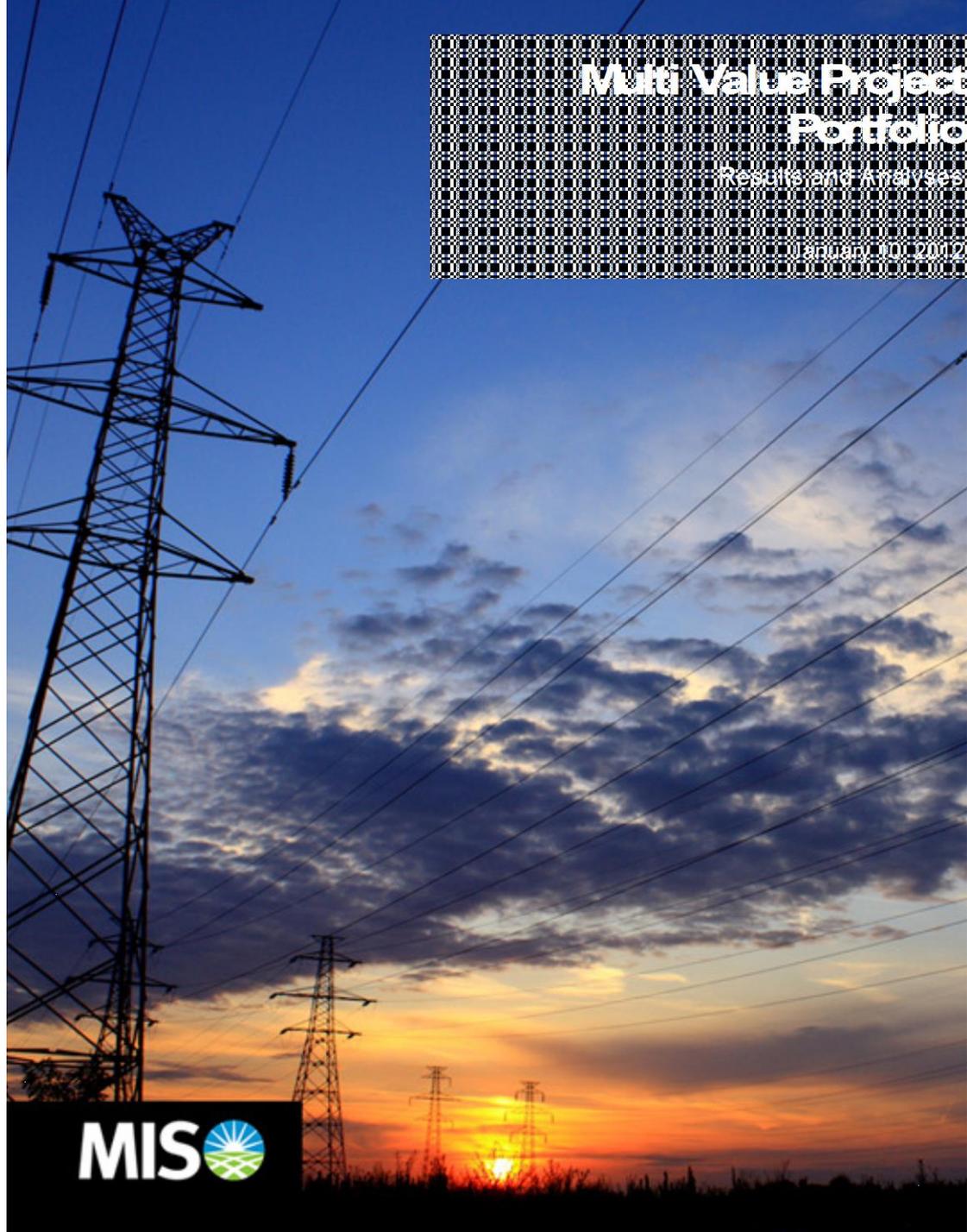
June 10, 2012

Western Governors' Association

# Multi-Value Project Portfolio

Results and Analysis

January 2017



The logo consists of the letters 'EEI' in a bold, white, sans-serif font. The letters are slightly shadowed, giving them a three-dimensional appearance as if they are floating above the background. The background is a green-tinted image of high-voltage power lines and towers.

**EEI**

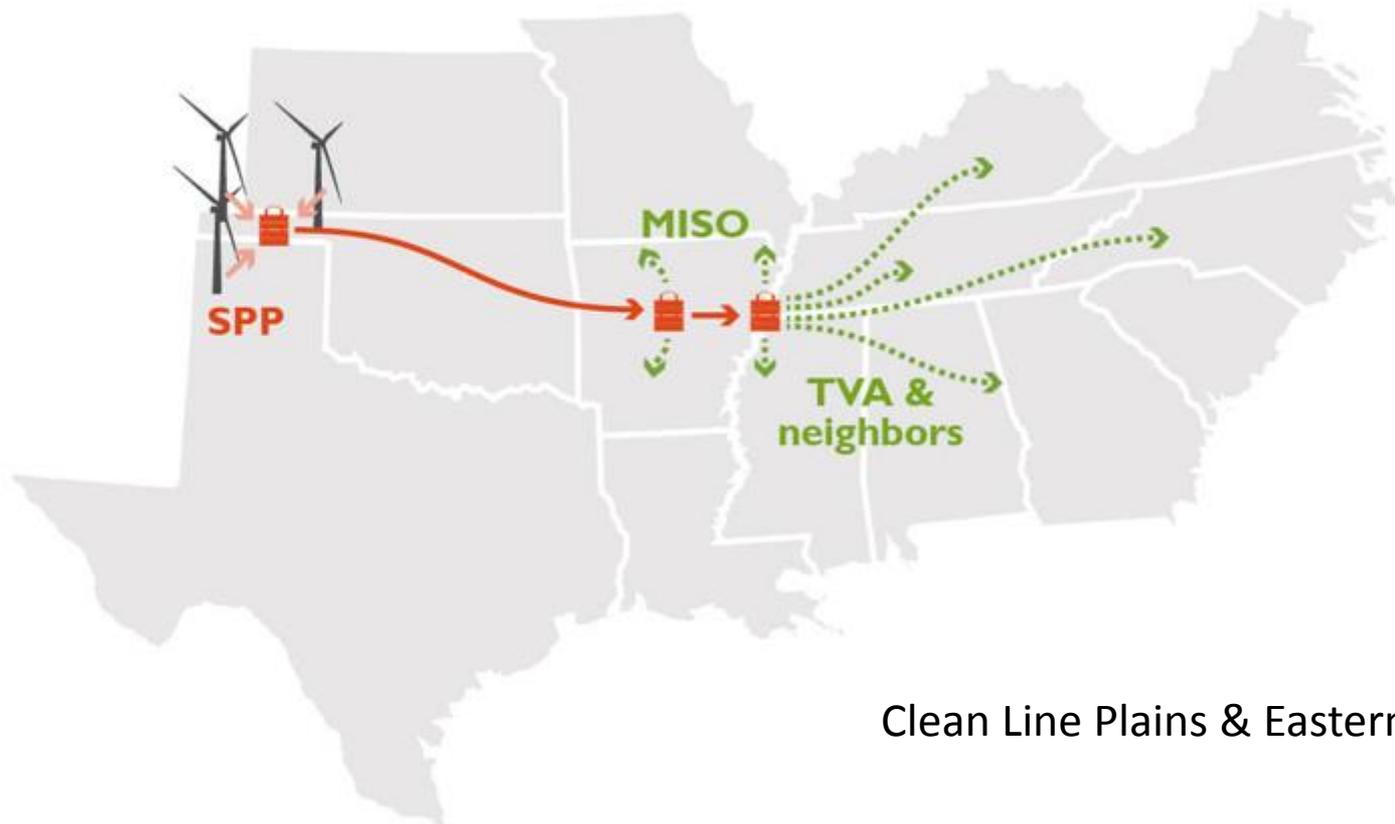
Edison Electric  
INSTITUTE

## **Transmission Projects: At A Glance**

A grayscale photograph of a renewable energy landscape. In the foreground, there are rows of solar panels. In the middle ground, several wind turbines are visible. In the background, there are mountains under a clear sky. The image is partially overlaid by a green-tinted graphic of solar panels on the left side.

Prepared by:  
**Edison Electric Institute**

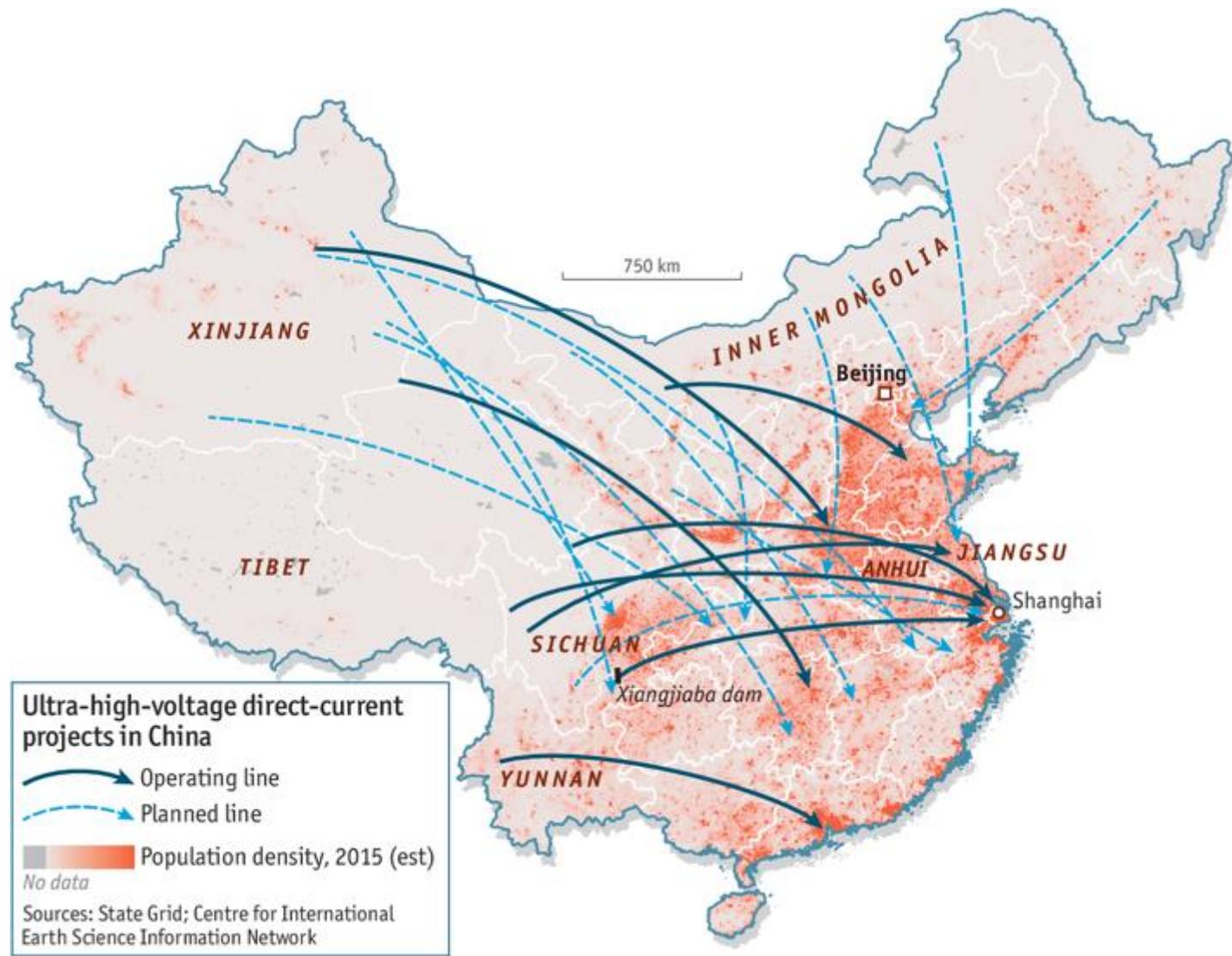
**December 2016**



## Clean Line Plains & Eastern

KEY			
 AC Collection system	 HVDC transmission line	 Existing utilities' AC system	 AC/DC Converter station

*This map is intended for illustration purposes only and does not represent a proposed route.*



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# State Siting Bodies and Regional Projects

- Well-positioned to make judgments
  - Questions persist about willingness to consider regional and national benefits
- Distribution of Benefits
- Incumbents and Independents
- Comity among States

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# Public Engagement

- On-going efforts to inform the public or at least its opinion leaders
- There is not enough engagement...
  - To overcome fundamental mistrust of institutions and motives

# About RAP

The Regulatory Assistance Project (RAP)® is an independent, non-partisan, non-governmental organization dedicated to accelerating the transition to a clean, reliable, and efficient energy future.

Learn more about our work at [raponline.org](https://raponline.org)



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